WHAT IS CLAIMED IS:

1. An air-cooled bucket for a turbine comprising an airfoil section having a plurality of cooling holes extending between root and tip portions of the airfoil with the holes exiting at the tip of the airfoil, said holes including at least a first hole adjacent a leading edge, at least a second hole adjacent a trailing edge and a plurality of holes intermediate said leading and trailing edge holes, said plurality of intermediate holes including holes spaced from one another on opposite sides of a mean camber line between said leading and trailing edges wherein said plurality of cooling holes form a generally airfoil-shaped envelope within the airfoil section, said first, intermediate and second holes having respective different cross-sectional areas with the first hole having the largest cross-sectional area, the intermediate holes having cross-sectional areas smaller than the cross-sectional area of said first hole and said second hole having a cross-sectional area smaller than the cross-sectional area of said intermediate holes.

2. A bucket according to Claim 1 wherein said first and second holes are canted relative to said intermediate holes.

3. A bucket according to Claim 1 wherein at least certain of said holes have a plurality of turbulators at spaced locations along the holes.

4. A bucket according to Claim 3 wherein said certain holes exclude said first and second holes.

5. A bucket according to Claim 3 wherein said certain holes include solely said intermediate holes.

6. A bucket according to Claim 5 wherein said first and second holes have smooth walls defining the holes.

7. A bucket according to Claim 1 wherein said airfoil section tip includes a flange projecting from and forming a continuation of the surface of the airfoil, said flange having an opening along a suction side of said airfoil section.

8. A bucket according to Claim 1 wherein each of said holes has a circular cross-section.

9. An air-cooled bucket for a turbine comprising an airfoil having a plurality of cooling holes extending between root and tip portions of the airfoil with the holes exiting at the tip of the airfoil, said holes including at least a first hole adjacent a leading edge, at least a second hole adjacent a trailing edge and a plurality of holes intermediate said leading and trailing edge holes, said plurality of intermediate holes including holes spaced from one another on opposite sides of a mean camber line between said leading and trailing edges wherein certain of said intermediate cooling holes form a generally airfoil-shaped envelope within and along the airfoil between said root and tip portions, said first, second and intermediate holes being located in accordance with X and Y coordinate values set forth in Table I in a plane passing through the root of the airfoil section at 5% span and wherein the first, second and

intermediate holes correspond to holes numbered, H1, H16 and H2-H14, respectively.

10. A bucket according to Claim 9 wherein said holes are located in accordance with X and Y coordinate values set forth in Table I in a plane passing through the airfoil at 50% span.

11. A bucket according to Claim 9 wherein said holes are located in accordance with X and Y coordinate values set forth in Table I in a plane passing through the airfoil at 90% span.

12. A bucket according to Claim 9 wherein said holes are located in accordance with X and Y coordinate values set forth in Table I in planes passing through the airfoil at 50% and 90% span, respectively.

13. A bucket according to Claim 9 wherein said certain holes are defined in Table I as holes numbered H2-H11 at 5% span.

14. A bucket according to Claim 12 wherein said certain holes are defined in Table I as holes numbered H2-H11 at 90% span.

15. A bucket according to Claim 12 wherein said holes numbered H1-H16 in Table I have respective hole diameters as indicated in Table I.

16. A turbine bucket including a bucket airfoil having an airfoil shape and a plurality of cooling holes

extending between root and tip portions thereof, said airfoil having a nominal profile substantially in accordance with Cartesian coordinate values of X, Y and Z set forth in Table II wherein the Z values are non-dimensional values from 0.05 span to 0.95 span convertible to Z distances in inches by multiplying the Z values by a height of the airfoil in inches, and wherein X and Y are distances in inches which, when connected by smooth continuing arcs, define airfoil profile sections at each distance Z, the profile sections at the Z distances being joined smoothly with one another to form a complete airfoil shape, said holes including at least a first hole adjacent a leading edge, at least a second hole adjacent a trailing edge and a plurality of holes intermediate said leading and trailing edge holes, said plurality of intermediate holes including holes spaced from one another on opposite sides of a mean camber line between said leading and trailing edges wherein said plurality of cooling holes form a generally airfoil-shaped envelope within the airfoil section, said first, intermediate and second holes having respective different cross-sectional areas with the first hole having the largest cross-sectional area, the intermediate holes having cross-sectional areas smaller than the cross-sectional area of said first hole and said second hole having a cross-sectional area smaller than the cross-sectional area of said intermediate holes.

17. A turbine bucket including a bucket airfoil having an airfoil shape and a plurality of cooling holes extending between root and tip portions thereof, said airfoil having a nominal profile substantially in

accordance with Cartesian coordinate values of X, Y and Z set forth in Table II wherein the Z values are non-dimensional values from 0.05 span to 0.95 span convertible to Z distances in inches by multiplying the Z values by a height of the airfoil in inches, and wherein X and Y are distances in inches which, when connected by smooth continuing arcs, define airfoil profile sections at each distance Z, the profile sections at the Z distances being joined smoothly with one another to form a complete airfoil shape, said holes including at least a first hole adjacent a leading edge, at least a second hole adjacent a trailing edge and a plurality of holes intermediate said leading and trailing edge holes, said plurality of intermediate holes including holes spaced from one another on opposite sides of a mean camber line between said leading and trailing edges wherein certain of said intermediate cooling holes form a generally airfoil-shaped envelope within and along the airfoil between said root and tip portions, said first, second and intermediate holes being located in accordance with X and Y coordinate values set forth in Table I in a plane passing through the root of the airfoil section at 5% span and wherein the first, second and intermediate holes correspond to holes numbered, H1, H16 and H2-H14, respectively.

18. A bucket according to Claim 17 wherein said holes are located in accordance with X and Y coordinate values set forth in Table I in a plane passing through the airfoil at 50% span.

19. A bucket according to Claim 17 wherein said holes are located in accordance with X and Y coordinate values set forth in Table I in a plane passing through the airfoil at 90% span.

20. A bucket according to Claim 17 wherein said holes are located in accordance with X and Y coordinate values set forth in Table I in planes passing through the airfoil at 50% and 90% span, respectively.

21. A bucket according to Claim 20 wherein said certain holes are defined in Table I as holes numbered H2-H11 at 5% span.

22. A bucket according to Claim 20 wherein said certain holes are defined in Table I as holes numbered H2-H11 at 90% span.

23. A bucket according to Claim 20 wherein said holes numbered H1-H16 in Table I have respective hole diameters as indicated in Table I.